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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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09/800,735

03/07/2001

Martin W. McKinnon III

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09/16/2004

SCIENTIFIC-ATLANTA, INC.
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EXAMINER

FERRIS, DERRICK W

ART UNIT

PAPER NUMBER

2663

DATE MAILED: 09/16/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/800,735

Applicant(s)

MCKINNON ET AL.

Examiner

Derrick W. Ferris

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 3/7/2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-16, 31-61 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-16, 31-47 and 49-61 is/are rejected.
- 7) ☒ Claim(s) 48 is/are objected to.
- 8) ☒ Claim(s) 17-30 are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 07 March 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>7/30/2001, 3/7/2001</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:
 - I. **Claims 1-16, 31-44 and 45-61**, drawn to prioritizing based on forecasted usage in *increasing* order where allocation is based on *decreasing* order or user priority, classified in class 370, subclass 468.
 - II. **Claims 17-30**, drawn to *no priority* (equal access) were allocation based on a defined *ratio*, classified in class 370, subclass 468.

The inventions are distinct, each from the other because of the following reasons:

2. Inventions I and II are unrelated. Inventions are unrelated if it can be shown that they are not disclosed as capable of use together and they have different modes of operation, different functions, or different effects (MPEP § 806.04, MPEP § 808.01). In the instant case the different inventions operate in different modes are thus distinct from one another. In particular, applicant's specification covers the following three general routines: bandwidth predicting/forecasting (e.g., using ARRSSES function or HW function), prioritizing connections (e.g., SLAs, forecasted bandwidth, fairness or a combination), and allocating of future bandwidth. The two different inventions differ in the way the routines are implemented. For example, Invention I prioritizes (i.e., the second routine) based on an increasing order for forecasted usage which is different from Invention II which does not prioritize. Thus both the ordering the type of prioritizing differs for each invention. Furthermore, how network access is allocated in the future also differs for all inventions. In particular, Invention I allocates network access in decreasing order of user priority and Invention II allocates network access based on a

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ratio (i.e., equal allocation). Further evidence is also provided in applicant's figures which shows e.g., Invention I in figure 11 and Invention II in figure 13. Examiner also notes that claim 48 is further different from claim 17 since claim 48 is performed only when the total forecasted access usage of the user *exceeds* the total access available allocation.

3. During a telephone conversation with Brook Lafferty on 09/07/2004 a provisional election was made without traverse to prosecute the invention of Invention I, claims 1-16. **Upon further reconsideration after the telephone conversation, the examiner has also grouped claims 31-44 and 45-61 with invention I since these claims are similar in view of the teachings of the prior art** (i.e., no additional burden was placed on the examiner). Affirmation of this election must be made by applicant in replying to this Office action. Thus claims 17-30 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. **Claims 1, 4, 7, 9-16, 31, 32, 35, 37-45, 49, 52, and 54-61 are rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Patent No. 6,680,922 B1 to *Jorgensen et al.* ("*Jorgensen*").**

As to **claim 1**, see e.g., figures 8a and 8b which show a RIMMA MAC IP flow analyzer and flow schedule used to monitor the flows of CPE devices (i.e., monitor network access usage by each user during a time interval) over a *shared* bandwidth connection in either the uplink or downlink position. As such, the analyzer and scheduler use an “advanced reservation algorithm” which takes requests, or forecasts of access over a future time interval, prioritizes the requests, and then sorts the requests to be allocated thus teaching the further steps of prioritizing users and allocating network access available to each user. In particular, the “advanced reservation algorithm” assigns *future* slots (see e.g., column 60, line 19) from highest to lowest priority (i.e., in *decreasing* order or priority) where slots are assigned based on priority such as SLA priorities which includes network usage, credits, or fees, see e.g., column 60, line 16- column 61, line 10 (with respect to SLAs also see e.g., column 12, lines 25-40; column 49, lines 51-64; and column 52. lines 3-33).

As to **claim 4**, *Jorgensen* teaches scheduling over a shared communications link, see e.g., column 3, line 47.

As to **claim 7**, future slots are in the next frame and thus equal in length.

As to **claims 9-13**, data is collected from each user which includes data representative of the number of logical data units transmitted, the number of bytes and data packets, and the number of dropped connections as part of the QoS for the connection, see e.g., columns 11-14 which teaches monitoring errors, bytes, packets, drop-outs, and connections as part of the QoS.

As to **claims 14-16**, see e.g., column 32, lines 9-13 and column 40, lines 7-18 where a CATV network is an alternative embodiment to a wireless network.

As to **claim 31**, see similar rejection to claim 1.

As to **claim 32**, see similar rejection to claim 4.

As to **claim 35**, see similar rejection to claim 7.

As to **claims 37-41**, see similar rejection to claims 9-13 respectively.

As to **claim 42**, see similar rejection to claim 14.

As to **claim 43**, see similar rejection to claim 15.

As to **claim 44**, see similar rejection to claim 16.

As to **claim 45**, see similar rejection to claim 1.

As to **claim 49**, see similar rejection to claim 4.

As to **claim 52**, see similar rejection to claim 7.

As to **claims 54-58**, see similar rejection to claims 9-13 respectively.

As to **claim 59**, see similar rejection to claim 14.

As to **claim 60**, see similar rejection to claim 15.

As to **claim 61**, see similar rejection to claim 16.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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7. **Claims 5-6, 8, 33, 34, 36, 50, 51 and 53** are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 6,680,922 B1 to *Jorgensen et al.* ("*Jorgensen*").

As to **claims 5-6, 8**, *Jorgensen* does not mention specific time interval ranges such as time intervals from one minute to fifteen minutes, fifteen minutes to sixty minutes, and one minute to sixty minutes. Examiner purposes to modify *Jorgensen* to include these ranges. In particular, examiner notes that it would have been obvious to one skilled in the prior to applicant's invention to include the above-mentioned ranges. In particular, one skilled in the art would be motivated to monitor the network for as long as possible in order to obtain more accurate results such as up to sixty minutes. *Jorgensen* provides a motivation on a smaller time scale which can be scaled up as part of a design decision in relation to figure 14 and column 60, lines 16-50. Specifically, an interval is measured for QoS which depends on the length of a packet flow which spans for a measurable amount of time where such a measurable amount of time (e.g., due to latency) could last up to sixty minutes.

As to **claim 33**, see similar rejection to claim 5.

As to **claim 34**, see similar rejection to claim 6.

As to **claim 36**, see similar rejection to claim 8.

As to **claim 50**, see similar rejection to claim 5.

As to **claim 51**, see similar rejection to claim 6.

As to **claim 53**, see similar rejection to claim 8.

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8. **Claims 2-3, 46 and 47** are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,680,922 B1 to *Jorgensen et al.* ("*Jorgensen*") in view of U.S. Patent No. 6,680,922 B1 to *Hanko et al.* ("*Hanko*").

As to **claims 2-3**, *Jorgensen* is silent or deficient to the further limitation of allocating a surplus network access where such allocation is either equal among the users or proportional to the user's forecasted network access usage.

Hanko teaches the above-limitation as step 506 in figure 6 where the bandwidth can also be allocated based on priority as taught e.g., at column 13, lines 20-35. Thus examiner purposes to modify *Jorgensen* to include an additional step such as step 506 where excess or surplus bandwidth is allocated to subscribers. Thus examiner notes that it would have been obvious to one skilled in the art prior to applicant's invention to include the further above-mentioned limitation. In particular, one skilled in the art would be motivated to perform the additional step so that bandwidth is not wasted during allocation. As such, one would be motivated to use a similar step as taught by *Jorgensen* in allocating bandwidth since such a step teaches the above-mentioned motivation.

As to **claim 46**, see similar rejection to claim 2.

As to **claim 47**, see similar rejection to claim 3.

Allowable Subject Matter

9. **Claim 48** is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

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10. Examiner recommends that applicant clarify in step (b) how forecasting is accomplished (i.e., by further reciting that forecasting is done through an exponential smoothing function such by using a HW function or ARRSSES Function as supported in applicant's figure 7).


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Derrick W. Ferris whose telephone number is (571) 272-3123. The examiner can normally be reached on M-F 9 A.M. - 4:30 P.M. E.S.T.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chau Nguyen can be reached on (571) 272-3126. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Derrick W. Ferris
Examiner
Art Unit 2663

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TECHNOLOGY CENTER 2600 9/13/04